Cash For Cradles?

The effects of Estonia's Large Family Allowance

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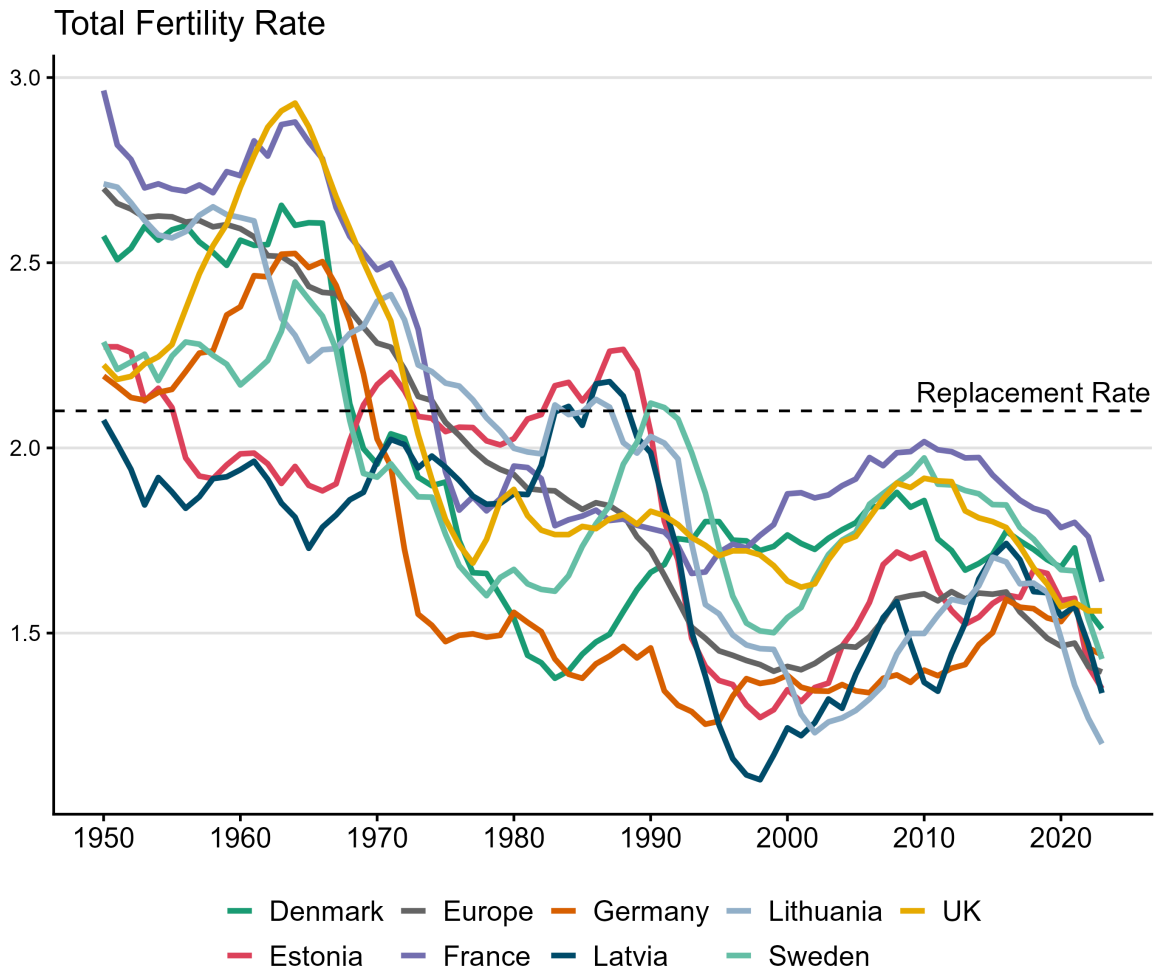
Contents

Motivation

Fertility has declined below replacement



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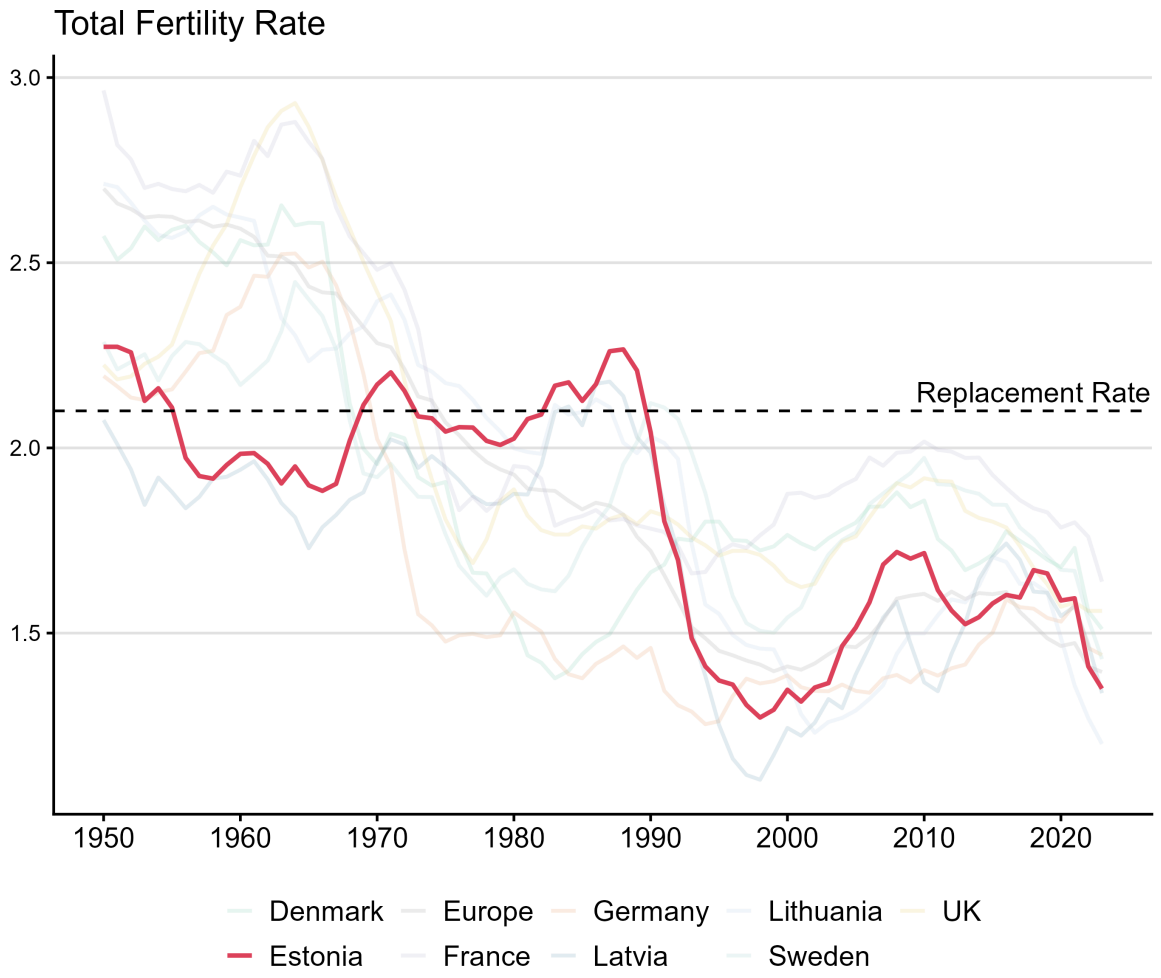

Why should we care?

Positive view: Challenges sustainability of existing social and economic institutions.

Individual welfare view: Unclear whether lower fertility is driven by:

- **Preferences** → Limited scope for policy to affect outcomes.
- **Constraints** → Policies may be welfare-improving (e.g. transfers).

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Do direct, sizeable, child-related transfers affect fertility?

→ If yes, evidences of binding economic constraints.

→ Potential implications for preferences and norms. Trade-offs?

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We study **Estonia**'s 2017 introduction of a **Large Family Allowance of €300/month**, which quadrupled the marginal benefit of having a third child.

The Large Family Allowance

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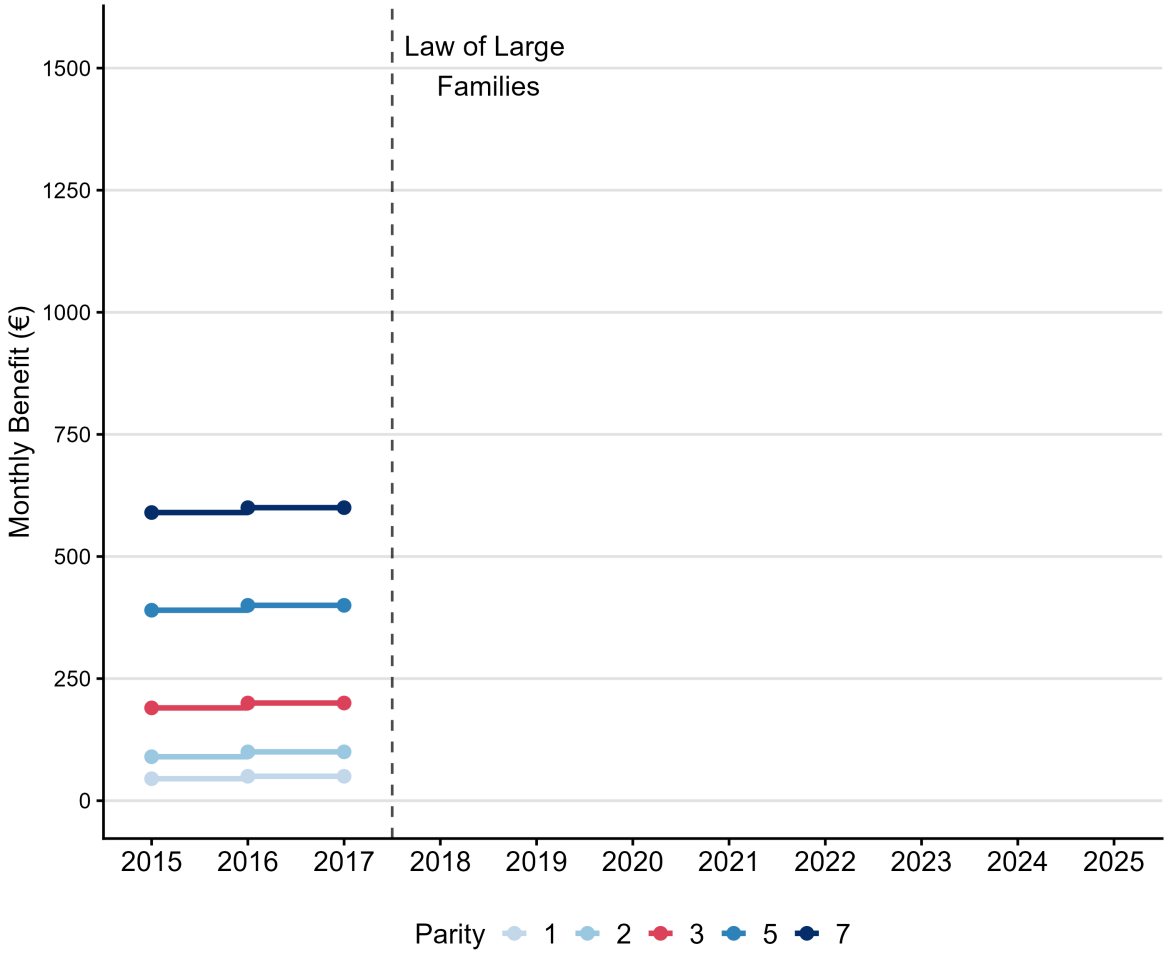
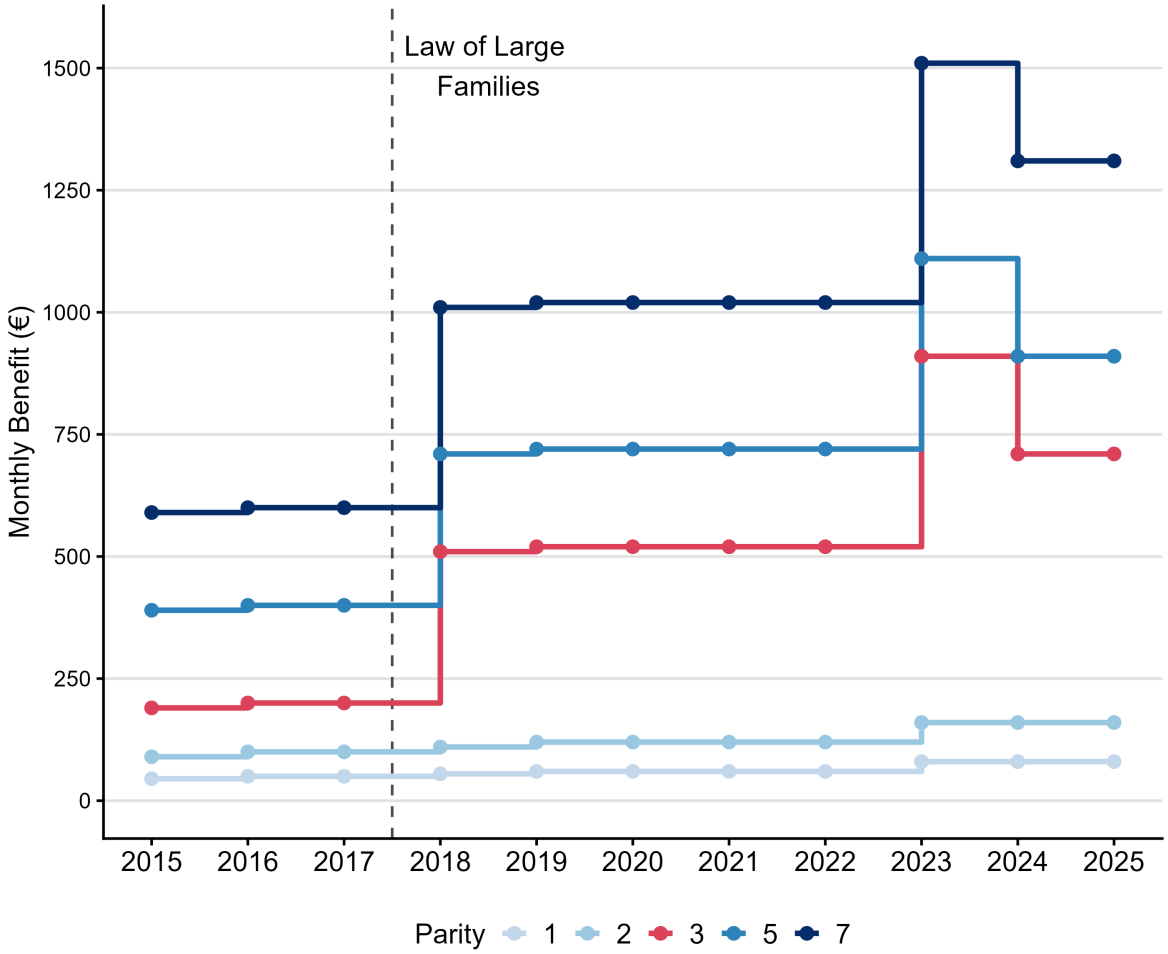


2005-2017

- 1st, 2nd child: **€50/month**
- 3rd+: **€100/month**

The Large Family Allowance



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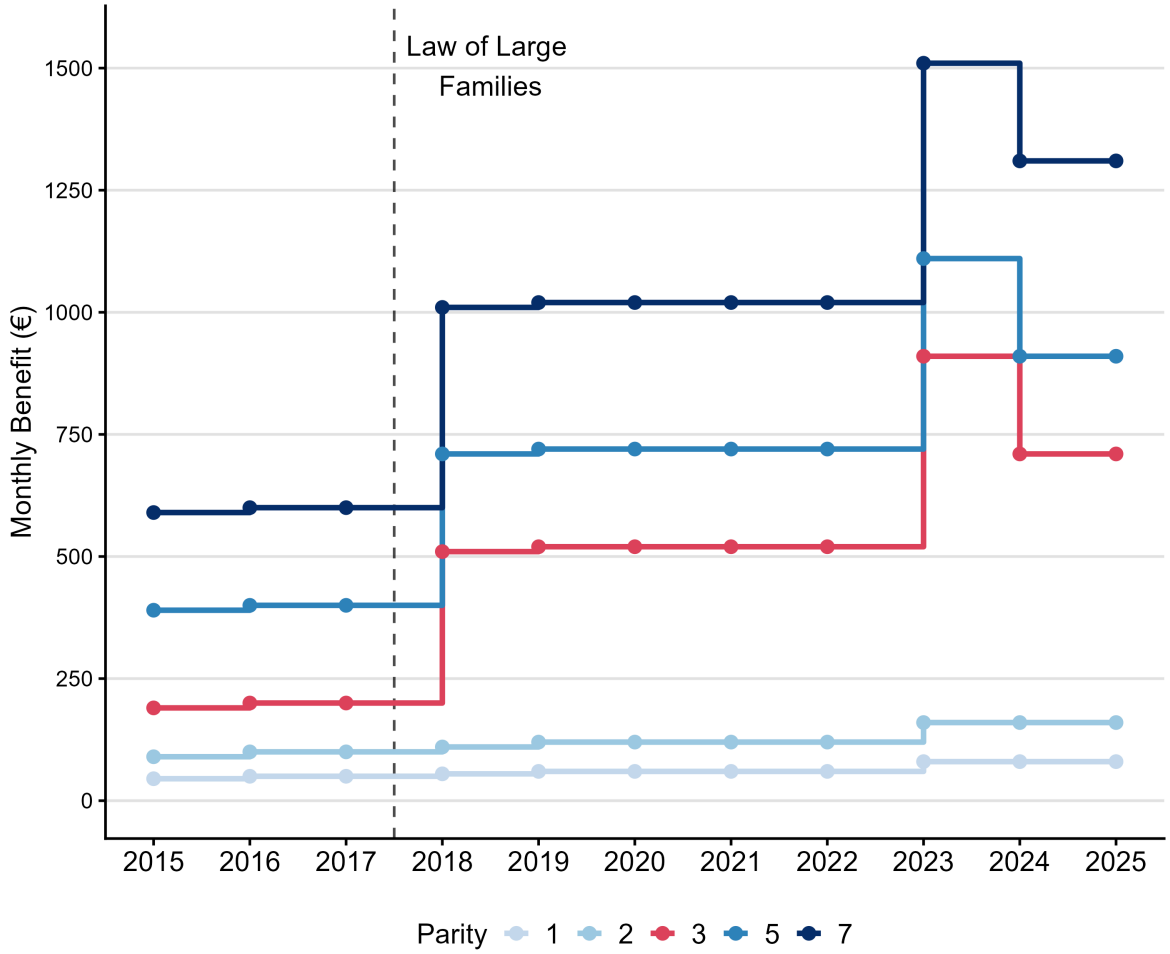
2017 Budget: LFA

- **3+** children: extra **€300/m.**
- **7+** children: extra **€400/m.**

The Large Family Allowance



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How large is this?

- **+300%** marginal benefit.
- ≈ 9% of mean disp. income.

Study effects on fertility.

Suggestive Evidence

Methodology for today

Data: Aggregate series from national statistics/Eurostat. Use LT, LV as control.

Outcome: Births per women of reproductive age (15-49), split by parity (1,2,3,4+).

Methodology:

- Difference-in-Differences and Event Study around 2018.
- Run separately for each parity.

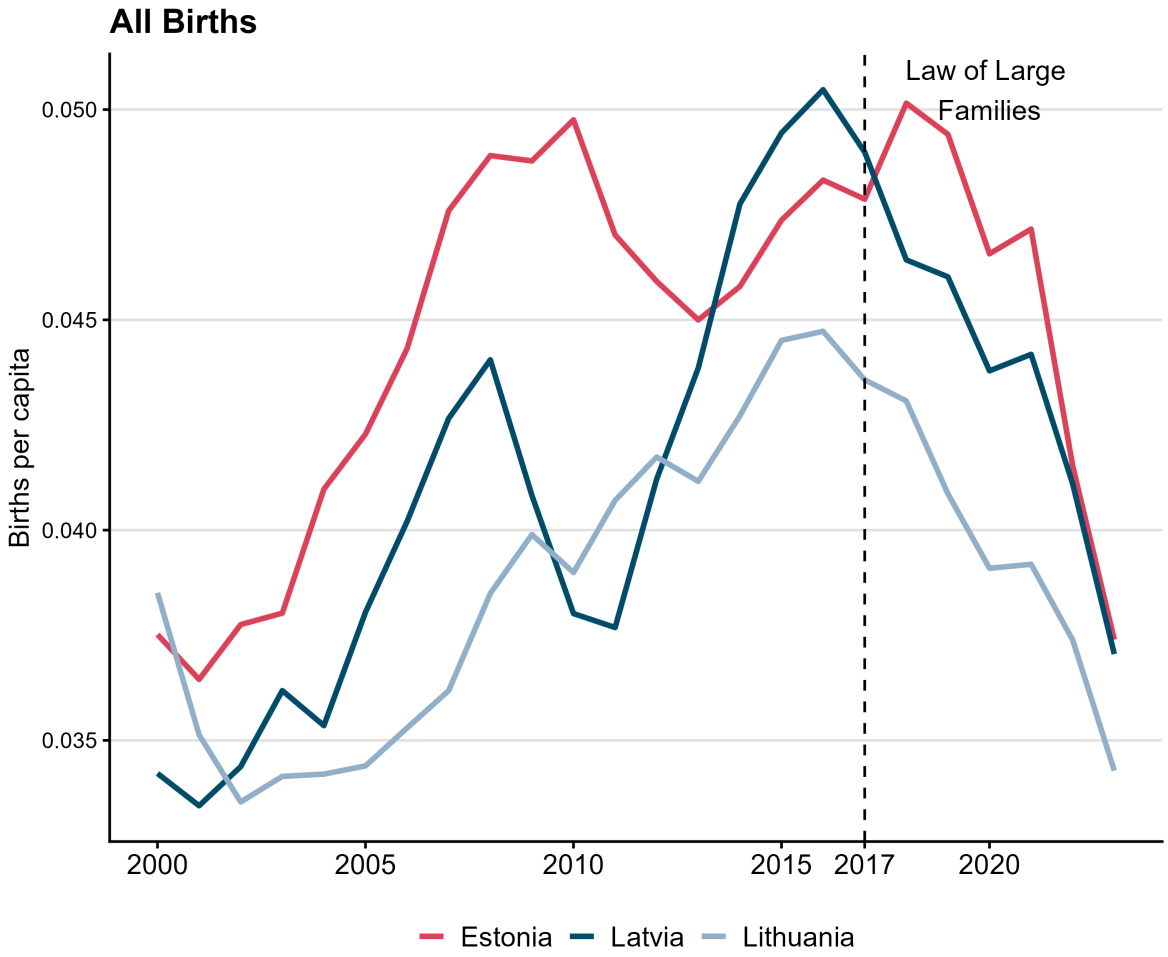
→ Results are **descriptive and suggestive; not causal**.

Soon: Use **Estonian microdata** for better estimates.

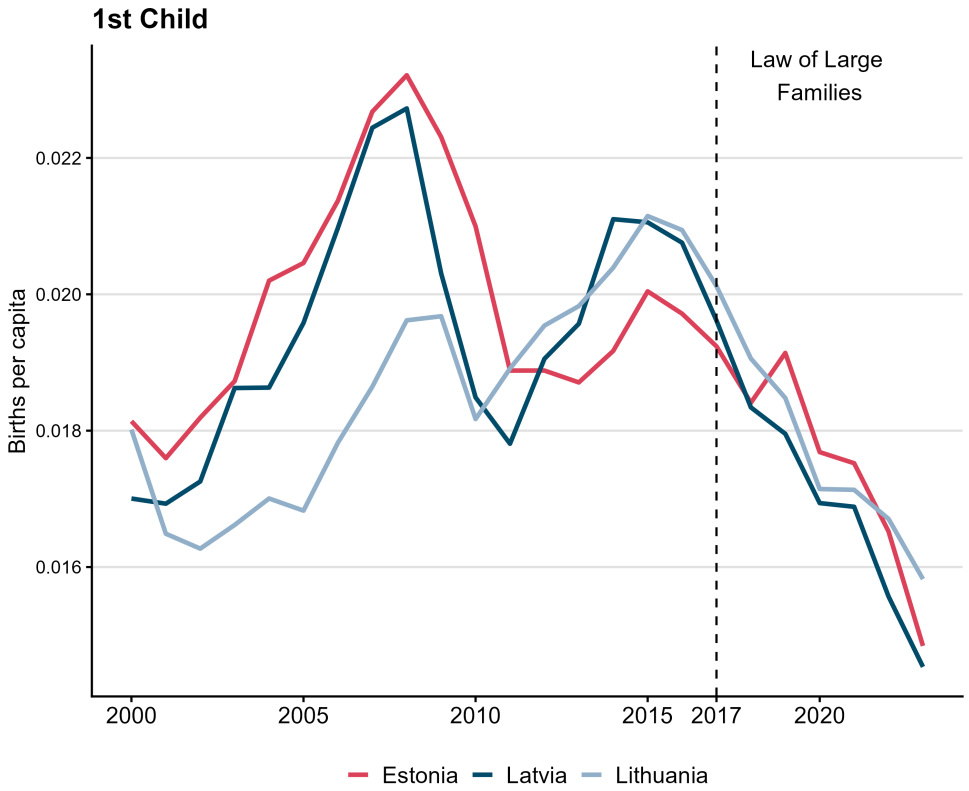
Raw data - total births

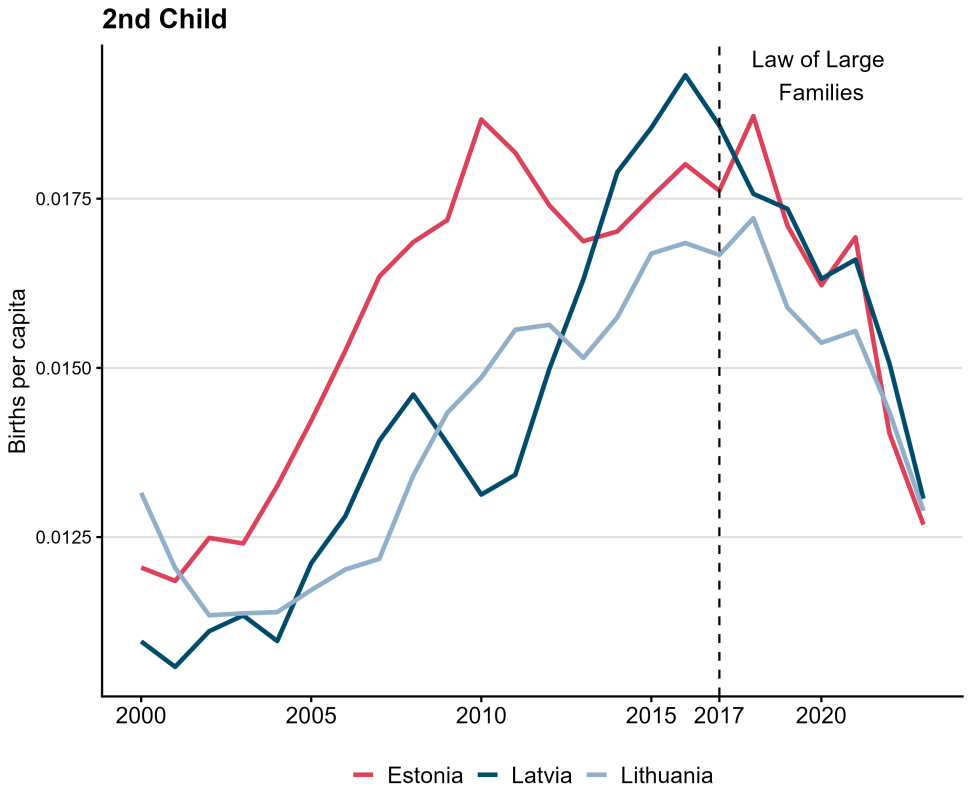
Estonia only country with an increase (+11%) after 2017.

Other Baltics and EU: large fall after 2017, following a post-2008 recovery.

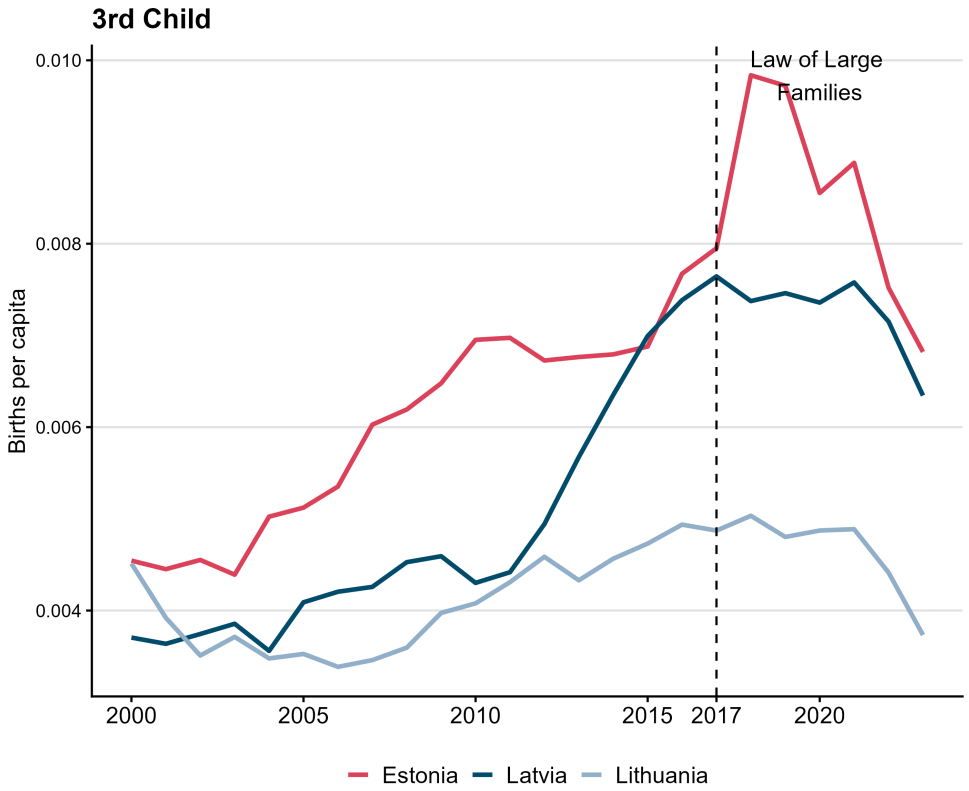


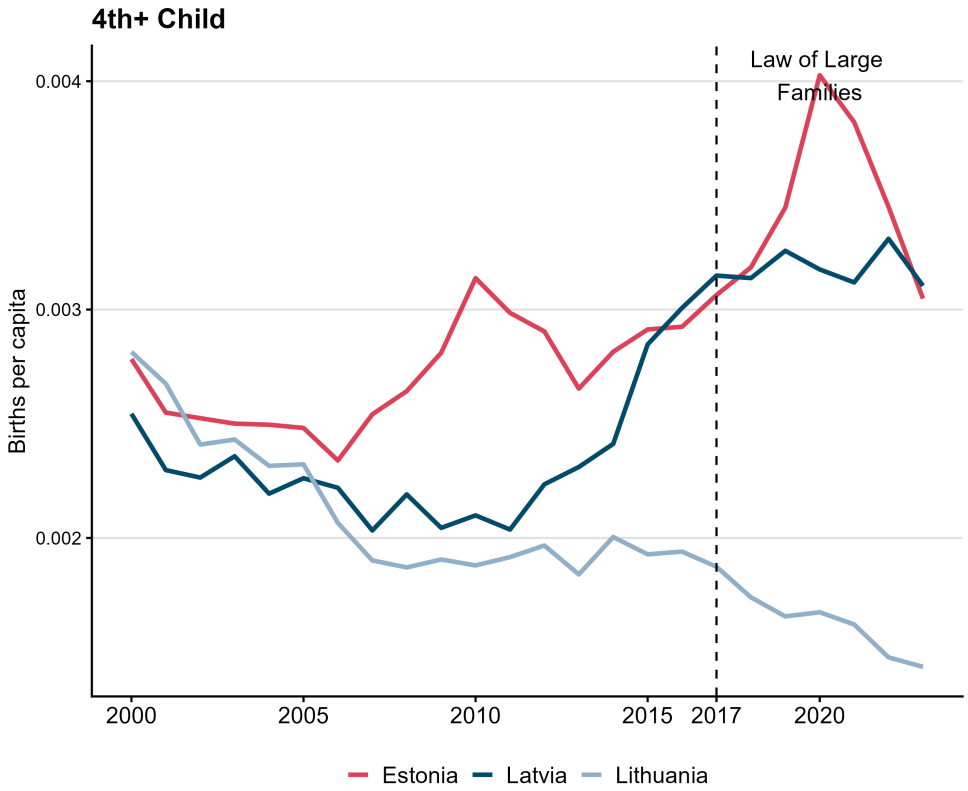
Raw data - Parity 1/2, no effect





Raw data - Parity 3/4+, large effect?





Difference-in-Differences - Results

Large point estimates…

But insignificant.

→ Suggestive of **+effect**.

Birth Order	2017 BPC	Short Term (2012-2021)	
1st	0.0188	**0.0014**	**7.5%**
		(0.0006)	
2nd	0.0174	**0.0002**	**1.3%**
		(0.0009)	
3rd	0.0067	**0.0015**	**22.8%**
		(0.0009)	
4+	0.0029	**0.0006**	**21.0%**
		(0.0004)	
Total	0.0459	**0.0038**	**8.3%**
		(0.0022)	

SE's shown in parentheses

Difference-in-Differences - Results

Large point estimates…

But insignificant.

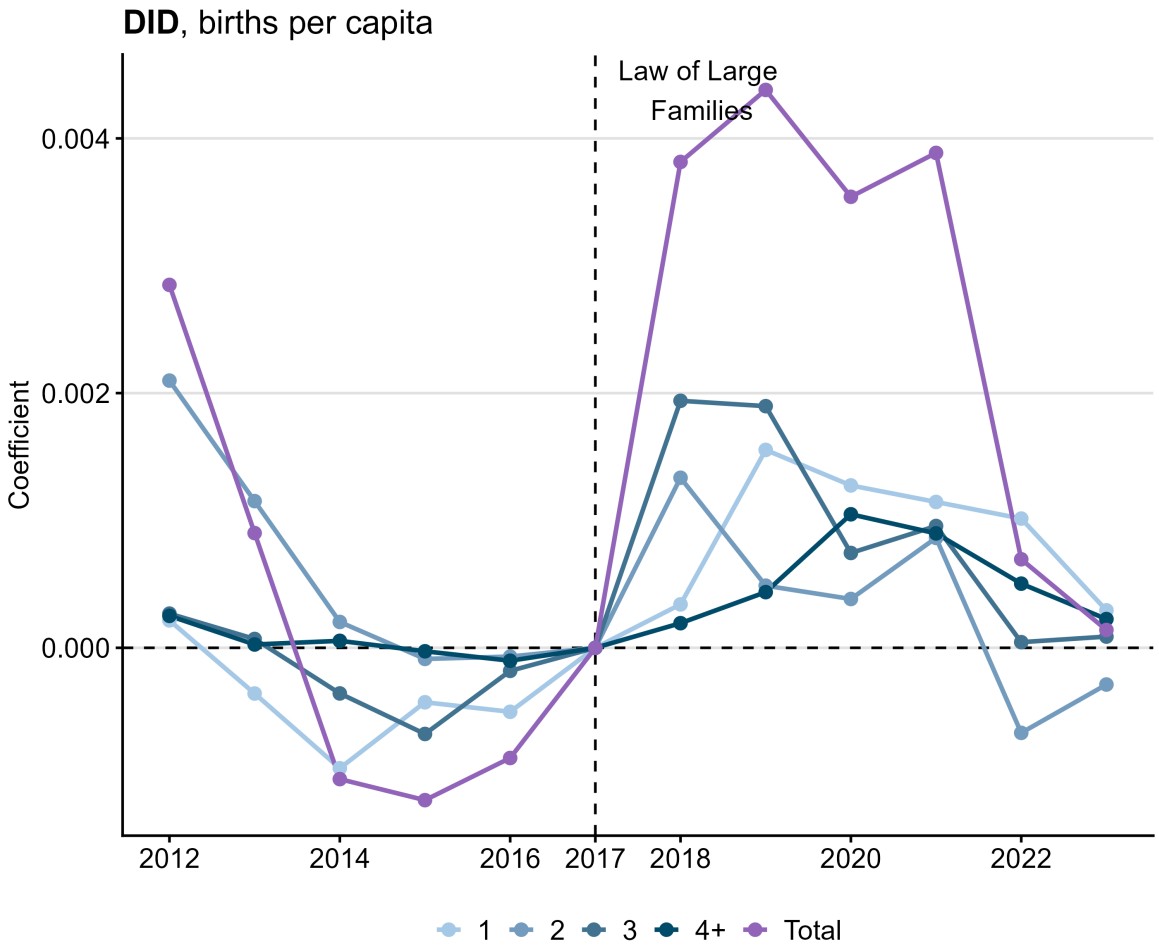
→ Suggestive of **+effect**.

Also shows an apparent reversal after 2022.

Birth Order	2017 BPC	Short Term (2012-2021)		Longer Term (2012-2023)	
1st	0.0188	**0.0014**	**7.5%**	**0.0013**	**6.7%**
		(0.0006)		*(0.0008)*	
2nd	0.0174	**0.0002**	**1.3%**	**-0.0002**	**-1.1%**
		(0.0009)		*(0.0011)*	
3rd	0.0067	**0.0015**	**22.8%**	**0.0011**	**16.2%**
		(0.0009)		*(0.0009)*	
4+	0.0029	**0.0006**	**21.0%**	**0.0005**	**17.8%**
		(0.0004)		*(0.0004)*	
Total	0.0459	**0.0038**	**8.3%**	**0.0026**	**5.7%**
		(0.0022)		*(0.0025)*	

SE's shown in parentheses

Positive effects for all parities...



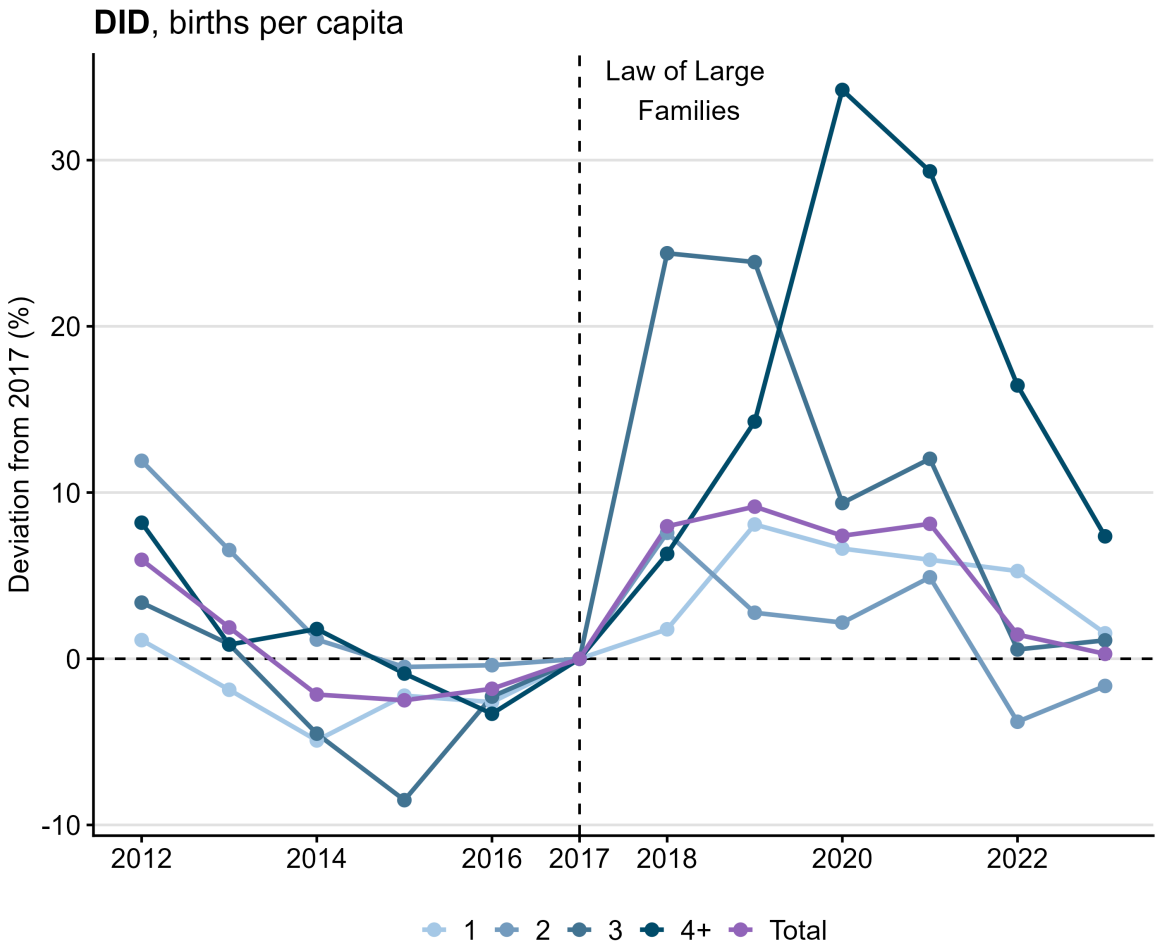
Event Study - Results

Positive effects for all parities...

Larger effects for larger families.

Peak effects:

- **+9%** Total births
- **+8%** 1st child
- **+8%** 2nd child
- **+24%** 3rd child
- **+34%** 4th+ child



Event Study - Results

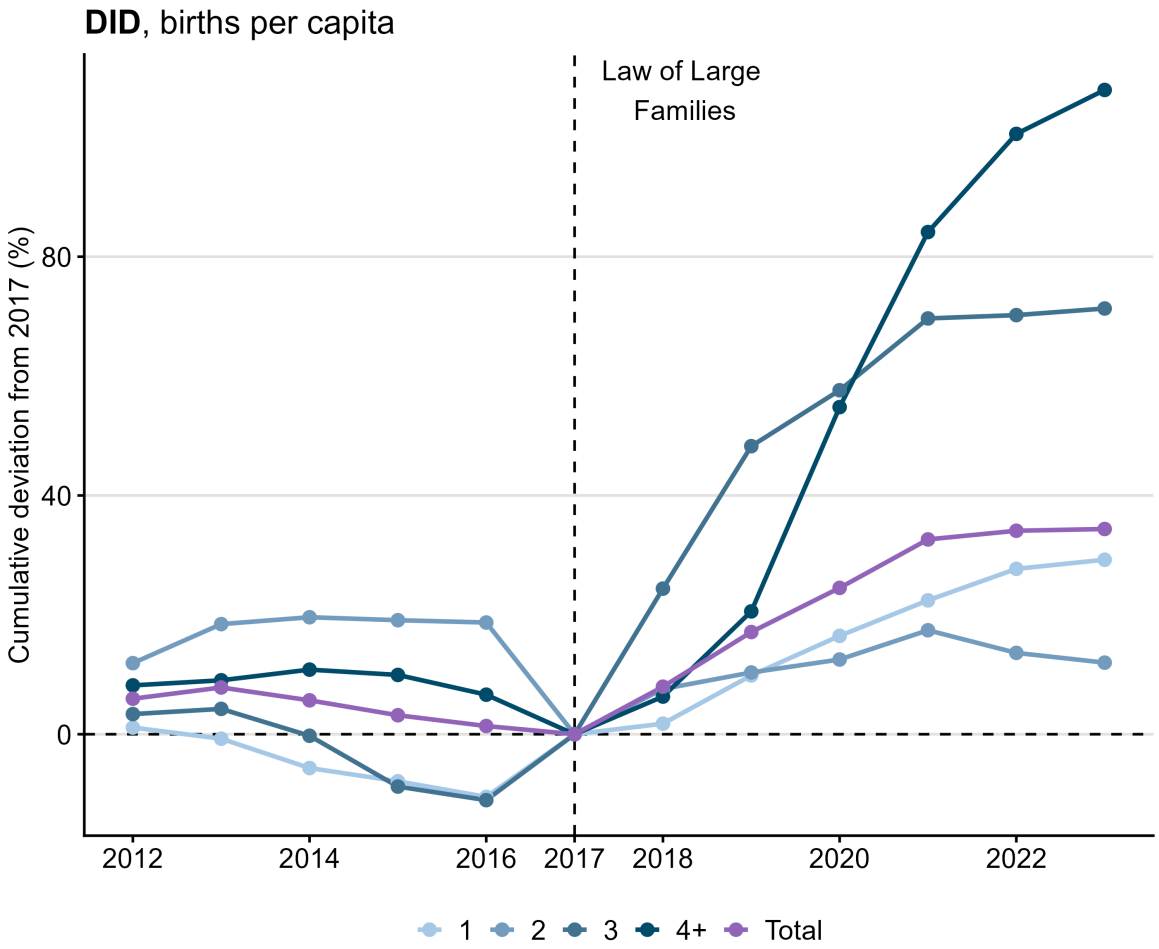
Positive effects for all parities...

Larger effects for larger families.

Cumulative effect by 2023:

- **+34%** Total births
- **+29%** 1st child
- **+17%** 2nd child
- **+71%** 3rd child
- **+108%** 4th+ child

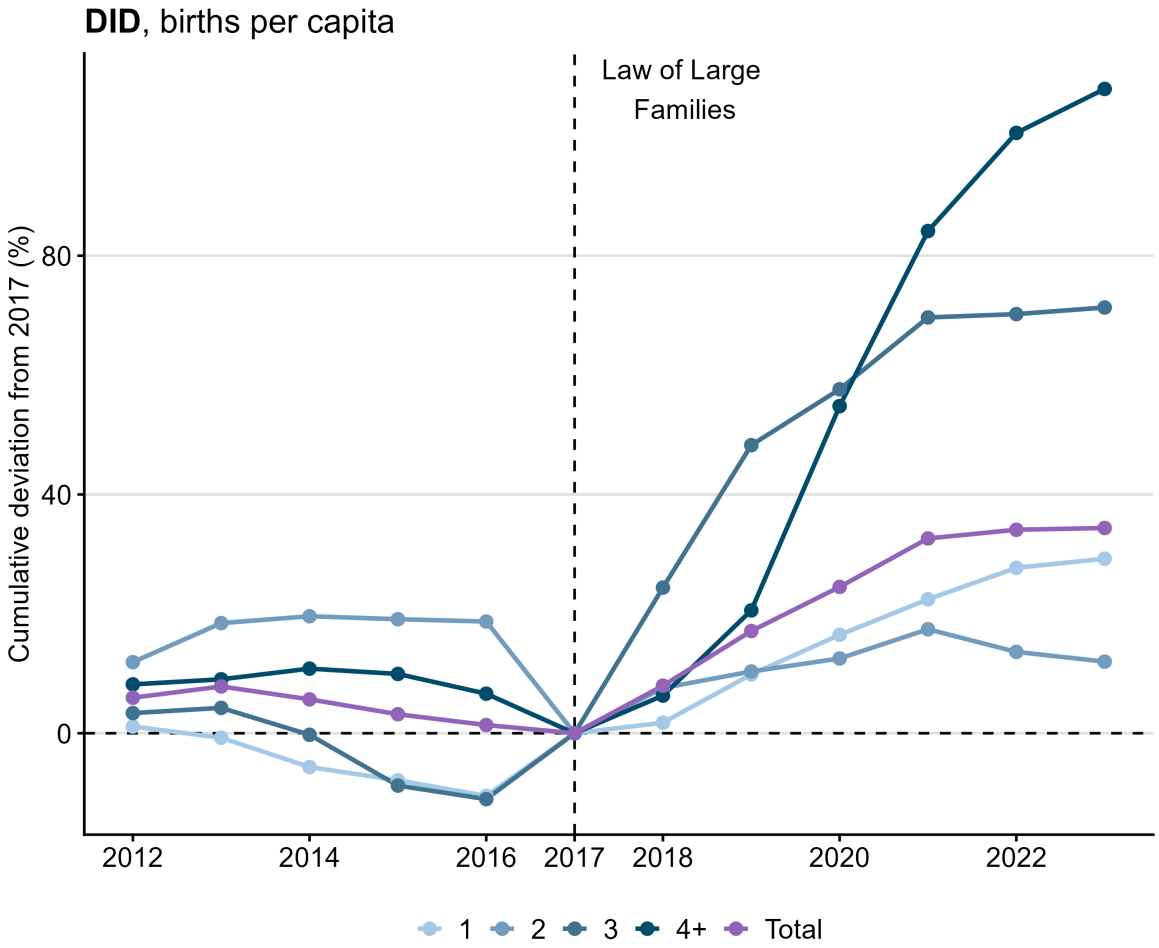
Then return to trend?



Empirical takeaways

Compelling suggestive evidence that the reform increased fertility.

Next: How to make this causal?



WIP - Methodology

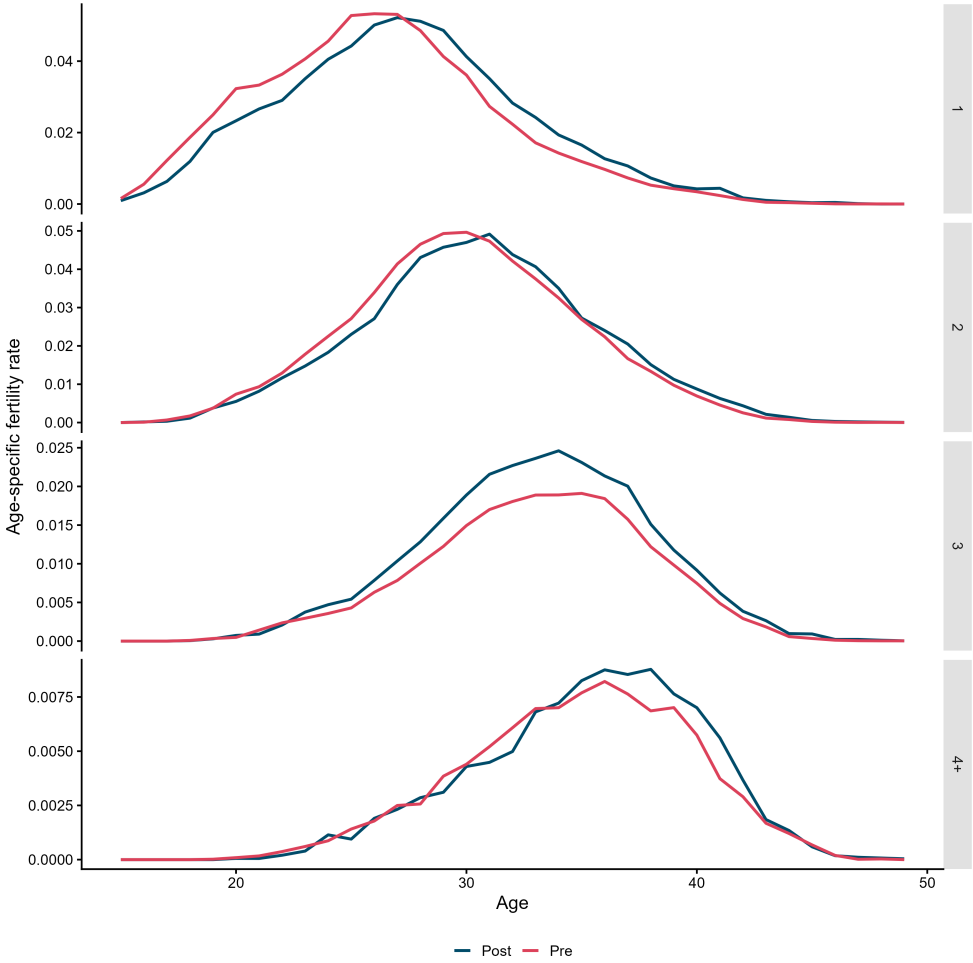
Objective

Ideal: Long-run Δ(fertility profile):

- Total Fertility Rate
- Transition matrix | Age, N
- Full Quantum vs Tempo effects
- GE effects (e.g. labour market)

We only have short-term data.

$\rightarrow$ How to extrapolate?



Identification

Basic model, conditional on current N children:

$$Y_{it} = \alpha + \beta * \text{Reform\_Exposure}_i + \gamma X_{it} + \varepsilon_{it}$$

Problem: The treatment Reform_Exposure is **not** randomly assigned.

- **Simultaneity**: Fertility $\leftrightarrow$ Income.
- **Pre-selection**: β depends on endogenous unobservables.

$\rightarrow$ Need **quasi-random variation in exposure intensity**. Some ideas...

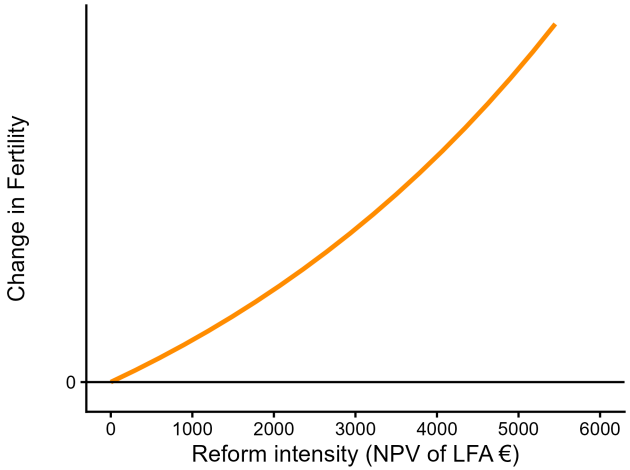
Identification 1: Ex ante children's age

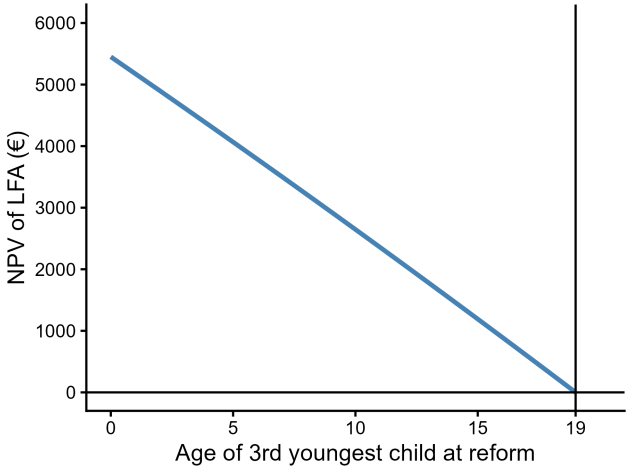
Eligibile for LFA while 3+ children in the family below 19.

→ IV: **3rd youngest child's age**.

Validity:

- ✓ Exo: Random conditional on X
- ✓ Rel: Age + → NPV of LFA ↓





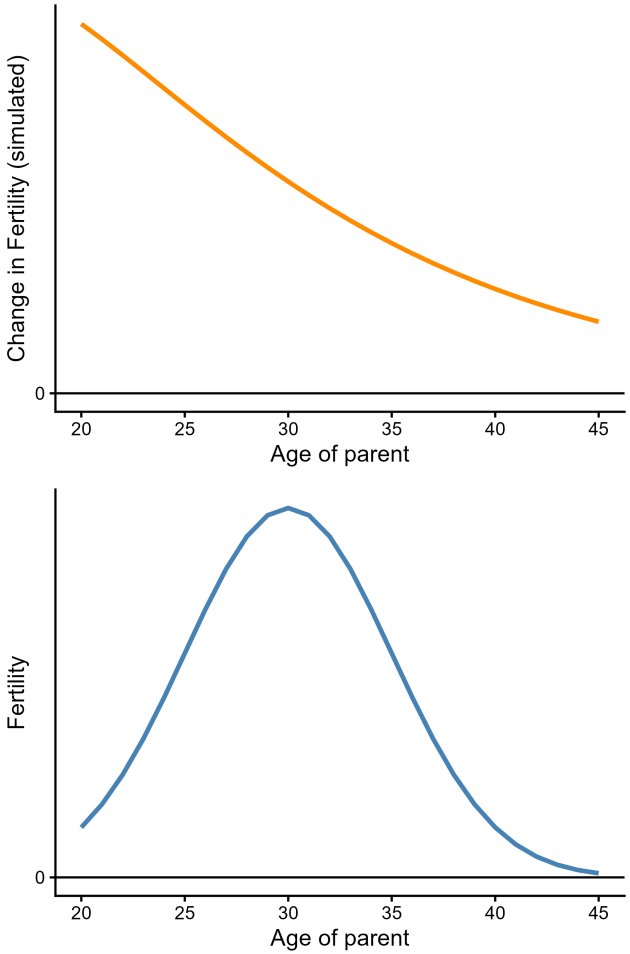
Identification 2: Ex ante parents' age

Fertility declines with age.

→ IV: **Parental age at reform**.

Validity:

- ✓ Exo: Random conditional on X
- ✓ Rel: Age + → Potential TE ↓



Other ideas

Differences in Differences: Use parity 0-2 as control for parity 3+.

$\rightarrow$ Credible if previous strategies do not find an effect for lower parities.

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→ Limited external validity (highly selected), underpowered.

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SS-IV: Leverage variation in cost of living across areas → Variation in relative value of LFA

→ Fragile exclusion restriction.

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→ Fragile exclusion restriction.

Registration frictions: Need to register all children with one parent

→ Fertility a medium/long-run decision, unlikely to matter much there.

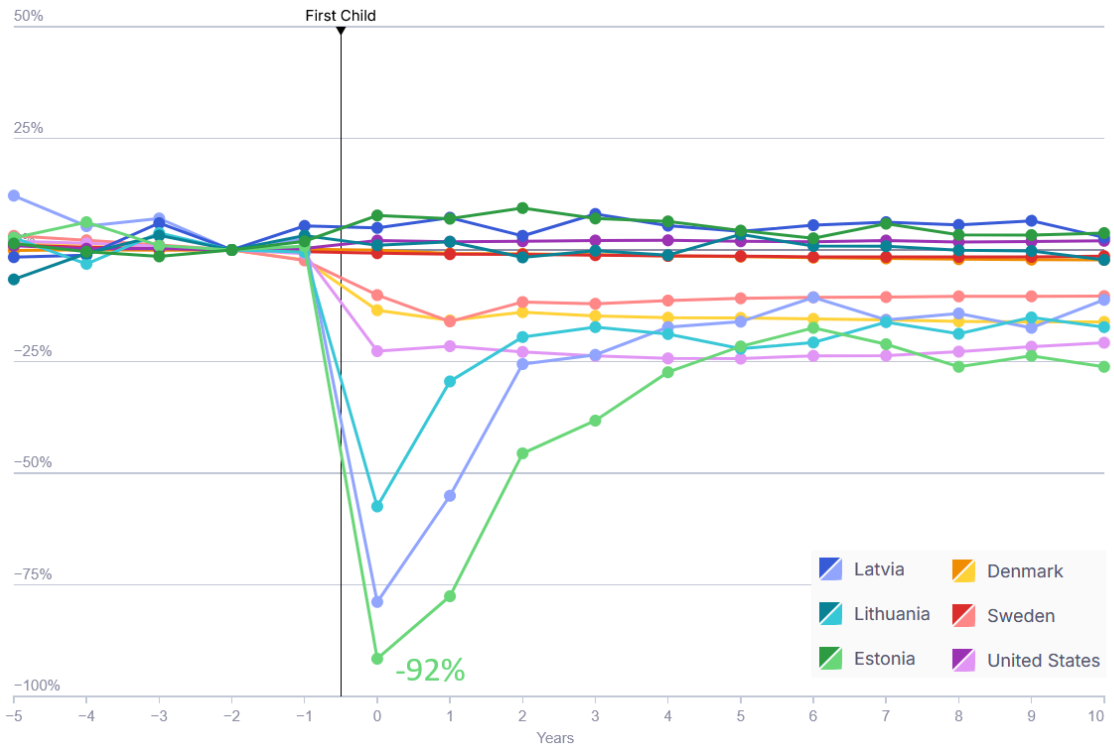
WIP - Closing the story

Child Penalties - Within-household inequality

Substantial child penalty.

Was this affected by the LFA?

- Pure income effect?
- Out of labour force for longer?



Source: Child Penalty Atlas

Redistribution - Between-household inequality

Short- vs long-run inequality?

- Lower income more constrained.
- LFA is transitory; labour market exit $\rightarrow$ long-term earnings $\downarrow$

Related: Change in income gradient in number of children?

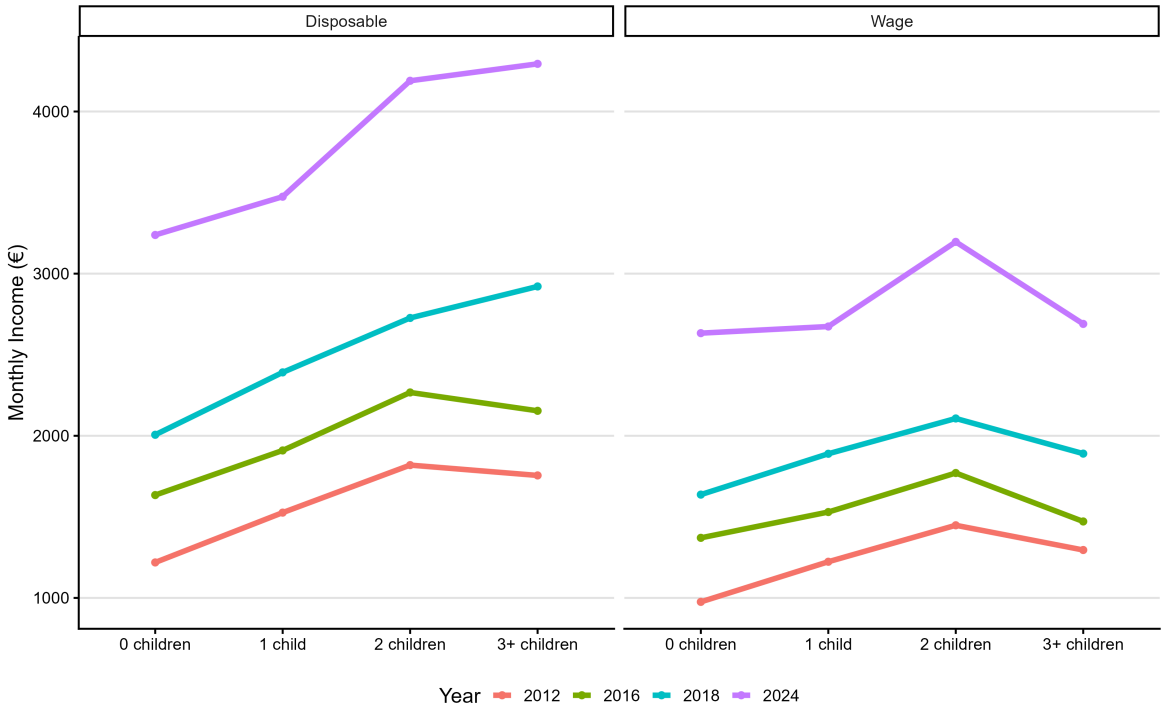
Short- vs long-run inequality?

- Lower income more constrained.
- LFA is transitory; labour market exit → long-term earnings ↓

Evidence of:

- Pre-redistribution inequality ↓
- Post-redistribution inequality ↑

Related: Change in income gradient in number of children?



Source: Eesti Pank

Family composition

LFA eligibility requires all children to be registered to a single parent.

→ Reform creates incentives to consolidate children within one household.

Only the one registered parent directly receives the LFA.

→ Reform affects intra-household income allocation and bargaining power.

Potential behavioral responses:

- Changes in child registration across parents
- Custody decisions become more salient after divorce
- Increased household stability or strategic cohabitation

Bonus: MPC Estimation

LFA is a pure, targeted income shock. Some ways to exploit to estimate interesting MPCs.

Some ideas:

- **Standard**: Study consumption when LFA payments start, explore heterogeneity.
- **Transcience**: Does expected length of benefit affect consumption behaviour?
- **Learning**: Transfers are monthly. Longer run adjustments / smoothing behaviour?

Thank you!